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ABSTRACT OF THE INVENTION

A differential interferometric confocal microscope for measuring an object, the microscope including a source-side pinhole array; a detector-side pinhole array; and an interferometer that images the array of pinholes of the source-side pinhole array onto a first array of spots located in front of an object plane located near where the object is positioned and onto a second array of spots behind the object plane, wherein the first and second arrays of spots are displaced from each other in both a direction normal to the object plane and a direction parallel to the object plane, the interferometer also imaging the first arrays of spots onto a first image plane that is behind the detector-side pinhole array and imaging the second array of spots onto a second image plane that is in front of the detector-side pinhole array wherein each spot of the imaged first array of spots is aligned with a corresponding different spot of the imaged second array of spots and a corresponding different pinhole of the detector-side pinhole array.